

AMENDMENTS TO THE CLAIMS

1-65 (Cancelled)

66. (Previously Presented) A filter element comprising a cylindrical filter media and an exoskeleton for the filter media;

the filter media being formed from only cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;

the exoskeleton comprising a support screen thermally bonded to the radially-outer peaks of the filter media, providing an at least 50% open flow area, and providing a tight array of attachment points supporting the pleats in an appropriately spaced and non-collapsed condition;

the support screen comprising a sheet of screen material having a width approximately equal to the axial dimension of the filter media;

the filter element being characterized by the absence of cellulose-fiber and woven-mesh endoskeleton support layers in the filter media and by the absence of a support structure surrounding the support screen.

67. (Previously Presented) A filter element as set forth in claim 66, wherein the layers comprise an inner layer, an outer layer, and a filtration layer therebetween; and wherein the filter media has a density of about 8 or more pleats per inner diameter inch.

68. (Previously presented) A filter element as set forth in claim 67, wherein the layers of the filter media consist essentially of the inner layer, the outer layer, the filtration layer.

69. (Previously presented) A filter element as set forth in claim 67, wherein the inner layer is made of a non-woven polymer, the outer layer is made of a non-woven polymer, and the filtration layer is made of fiberglass or at least one polymer.

70. (Previously presented) A filter element as set forth in claim 67, wherein the inner and outer layers each have a thickness of less than about 0.030 inches.

71. (Previously presented) A filter element as set forth in claim 66, wherein the layers of the filter media consist essentially of an inner layer, an outer layer, and a filtration layer therebetween; and wherein the filtration layer is made of at least one of fiberglass, nylon, polyamide, polyester, polyethylene, polypropylene, or mixtures thereof, and wherein the inner and outer layers each have a thickness less than about 0.030 inches and are made of a non-woven polymer.

72. (Previously presented) A filter element as set forth in claim 66, wherein support screen comprises a first set of cords extending in a first direction, a second set of cords extending in a second direction and intersecting with the first set of cords, and openings defined therebetween;

wherein adjacent cords in the first set are separated from each other by a distance d_1 , adjacent cords in the second set are separated from each other by a distance d_2 , and adjacent radially-outer peaks are separated from each other by a distance d_{pleat} ; and

wherein the distance d_1 between the first set of cords is about half to about twice the distance d_{pleat} between adjacent radially-outer peaks.

73. (Previously presented) A filter element as set forth in claim 66, wherein the sheet of screen material has a length approximately equal to the circumferential dimension of the filter media plus a seam allowance and the support screen has lateral edges joined together at a side seam.

74. (Previously presented) A filter element as set forth in claim 73, wherein the side seam extends substantially parallel to a longitudinal axis of the filter media.

75. (Previously presented) A filter element as set forth in claim 73, wherein the lateral edges overlap and are thermally bonded together to form the side seam.

76. (Previously presented) A filter element as set forth in claim 66, wherein the support screen is made of a PVC coated fiberglass mesh.

77. (Previously presented) A filter element as set forth in claim 66, wherein the filter element is a microfilter element for removing impurities in the range of about 0.5 μm to about 25.0 μm from hydrocarbon fuel.

78. (Cancelled)

79. (Previously presented) A filter element as set forth in claim 66, wherein the filter media is a coalescer element for removing free water and particulate from aviation fuel.

80. (New) A filter element consisting essentially of:

a cylindrical filter media formed from cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;

a support screen having a width approximately equal to the axial dimension of the filter media; and thermally bonded to the radially-outer peaks of the filter media; and

an end cap bonded to each axial end of the filter media.

81. (New) A filter element as set forth in claim 80 wherein the support screen provides an at least 50% open flow area and a tight array of attachment points supporting the pleats in an appropriately spaced and non-collapsed.

82. (New) A filter element as set forth in claim 80, wherein the filter element is a microfilter element for removing impurities in the range of about 0.5 μm to about 25.0 μm from hydrocarbon fuel.

83. (New) A filter element as set forth in claim 80, wherein the layers of the filter media consist essentially of an inner layer, an outer layer, and a filtration layer therebetween; and wherein the filtration layer is made of at least one of fiberglass, nylon,

polyamide, polyester, polyethylene, polypropylene, or mixtures thereof, and wherein the inner and outer layers each have a thickness less than about 0.030 inches and are made of a non-woven polymer.

84. (New) A filter element consisting essentially of:

a cylindrical filter media formed from cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;

a support screen having a width approximately equal to the axial dimension of the filter media; and thermally bonded to the radially-outer peaks of the filter media;

an end cap bonded to each axial end of the filter media; and

a central tube circumscribed by the filter medial.

85. (New) A filter element as set forth in claim 84 wherein the support screen provides an at least 50% open flow area and a tight array of attachment points supporting the pleats in an appropriately spaced and non-collapsed.

86. (New) A filter element as set forth in claim 84, wherein the filter element is a microfilter element for removing impurities in the range of about 0.5 μm to about 25.0 μm from hydrocarbon fuel.

87. (New) A filter element as set forth in claim 84, wherein the layers of the filter media consist essentially of an inner layer, an outer layer, and a filtration layer therebetween; and wherein the filtration layer is made of at least one of fiberglass, nylon, polyamide, polyester, polyethylene, polypropylene, or mixtures thereof, and wherein the inner and outer layers each have a thickness less than about 0.030 inches and are made of a non-woven polymer.